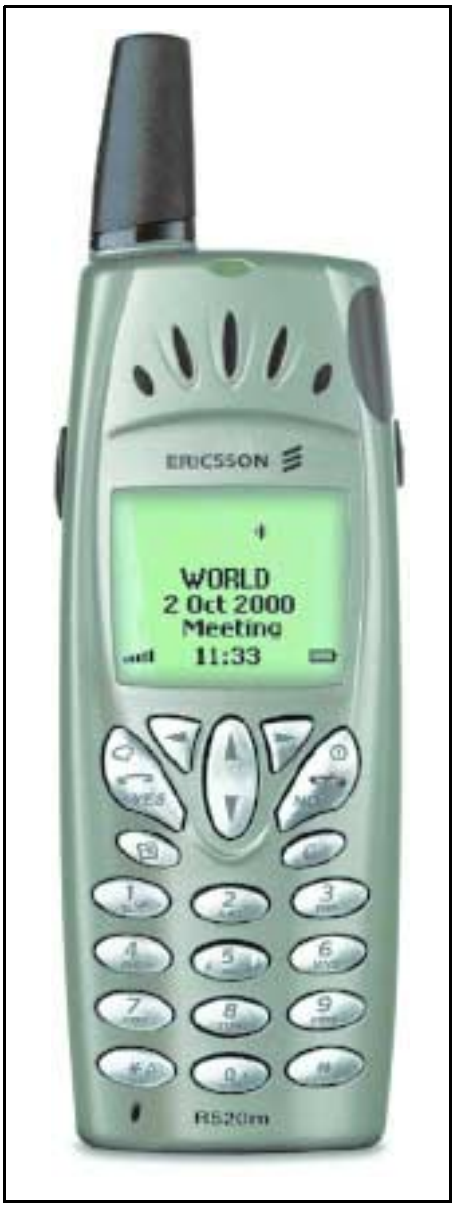
EN/LZT 108 4504 R2A



Mobile Phone R520 Developers' Guidelines

Remote Configuration

ERICSSON

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Remote Configuration

1 Introduction

NOTE: *Requirements stated in this document overrides any correspondent requirements stated in the referenced documents.*

1.1 Scope of the Document

The objective of this specification is to outline the remote configuration support available for the R520 m/mc mobile phone.

Ericsson R520m/mc supports remote configuration of data accounts and the WAP browser as described in section 2. The solution is based on the joint Ericsson and NOKIA specification "Over The Air Settings Specification" [1] and there is a description of compliance between this specification and the OTA implementation in R520m/mc provided.

Ericsson R520m/mc supports remote configuration of the e-mail client as described in section 3. The solution is based on Smart Messaging [2] and is thus an addition to the solution provided by [1]. There is a description of compliance between this specification and the Smart messaging implementation in R520m/mc provided.

Section 4 (Appendix A) includes some remote configuration examples that do comply with the R520m/mc.

1.2 References

[1] GT/NB 2000:0012, Over The Air Settings Specification, version 6.5, 2000-12-05

NOTE: *The document number is the Ericsson reference number to a joint NOKIA and Ericsson specification. The corresponding NOKIA reference number is DSS00234-EN.*

[2] Smart Messaging Specification, revision 2.0.0, 1999-04-21
[3] Digital cellular telecommunications system (phase 2+); Alphabets and language specific information, GSM 03.38

1.3 Terminology

See [1], [2] and [3].

2 Compliance to OTA Settings Specification

2.1 Overview

2.1.1 General

The R520m/mc implementation prescribes that a PARM element with the NAME=BEARER should be the first PARM element in characteristic element with the TYPE=ADDRESS (otherwise the information will be discarded).

2.1.2 Mapping of data to data accounts and WAP profiles

R520m/mc uses the concept of data accounts in which all information the phone needs to communicate with a certain internet access point is grouped. It is possible to have several data accounts saved in the phone, with different settings for different purposes. Once a data account is created, it can be re-used in any application that needs the connection defined by the data account.

One OTA message can include settings for one WAP profile and for all three possible bearers (GPRS, CSD and SMS). However, it is only possible to have one instance of each (This means that a maximum of two data accounts can be created for each OTA message, one account using GPRS and one account using CSD as a bearer. A data account cannot be defined using SMS as a bearer.). The parameters within the created data accounts, that are not included among the new settings, are set to their default values.

When a user accepts a new set of settings by means of OTA, the user is requested to associate the settings to one out of the five available WAP profiles. The parameters within the selected WAP profile, that are not included among the new settings, are set to their default values. In addition, one or more data accounts will be created (unless the bearer chosen is SMS).

All valid settings provided in the OTA message will be stored, but only one bearer (data account) will be mapped to the WAP profile. The mapping of the bearer instance to the WAP profile will apply according to the following priority order: GPRS, CSD and SMS, i.e only one of the bearers included in the OTA message will be mapped to the WAP profile.

2.1.3 Bearers

The R520m/mc supports GSM/CSD, GSM/SMS and GPRS.

NOTE: *R520m/mc support SMS over GSM and SMS over GPRS. However this choice is not configurable over the air.*

The R520m/mc does not support the Unstructured Supplementary Service Data bearer (GSM/USSD) as a bearer for WAP or e-mail. Obviously, the R520m/mc does not support the Circuit Switched bearer in the TDMA system (IS-136/CSD) either.

2.1.4 Bookmarks

R520 supports bookmarks provided by OTA. Note that only bookmarks identified by the MIME-type **application/x-wap-prov.browser-settings** are supported, i.e. only bookmarks provided together with browser settings are supported. Bookmarks provided by OTA will be associated with the corresponding WAP profile that is provided by the same OTA message.

NOTE: *The BOOKMARK element type is used to give a full definition of the homepage, see section 2.1.5 and {1}.*

2.1.5 Setting the Homepage

As stated in [1], both the URL element type and the BOOKMARK element type should be used to define the homepage. In R520m/mc, only the BOOKMARK element type construction is supported to set both the title and the URL of the homepage.

If several bookmarks are provided in one document, the first one will be mapped to the homepage and the rest will be mapped as bookmarks associated with the selected WAP profile.

2.1.6 Inline Strings

The R520m/mc accepts encoding of the inline strings in UCS2 or in UTF-8. The encoding is determined for the entire document either by a definition of the character set in the header of the XML document (for WBXML 1.1) or, in the WSP header. A definition in the WSP header will be valid only if the parameter in the header of the XML document is set to '0' (where '0' is default for UTF-8, which thus will be overridden by the WSP setting). The definition of the inline strings in terms of valid character set and maximum length are given in the table below.

Element type	PARM element	Compliance, Valid character set	Maximum length (in characters)
ADDRESS	PROXY (GSM/CSD)	Yes, UTF-8	15
ADDRESS	PROXY (GPRS)	Yes, UTF-8	15
ADDRESS	ISP_NAME	Yes, UTF-8 or UCS2	20
ADDRESS	CSD_DIALSTRING	Yes, UTF-8	20
ADDRESS	GPRS_ACCESSPOINTNAME	Yes, UTF-8	99
ADDRESS	PPP_AUTHNAME	Yes, UTF-8	30
ADDRESS	PPP_AUTHSECRET	Yes, UTF-8	30
ADDRESS	PROXY_AUTHNAME	Yes, UTF-8	30
ADDRESS	PROXY_AUTHSECRET	Yes, UTF-8	30
ADDRESS	PROXY (GSM/SMS)	Yes, UTF-8	20
ADDRESS	SMS_SMSC_ADDRESS	Yes, UTF-8	20
URL		No	
NAME	NAME	Yes, UTF-8 or UCS2	15
BOOKMARK	NAME	Yes, UTF-8 or UCS2	15
BOOKMARK	URL	Yes, UTF-8	120
ID	NAME	Yes, UTF-8 or UCS2	8

Note that the limitations and the parameters are given in characters, while the limitations in [1] are given in bytes. In case the encoding of the inline strings is in UCS2, there is of course a further implicit limitation that the character set should correspond to one of the character sets supported by the specific product version.

For example, the R520m could parse inline strings in Chinese encoded in UCS2, but since the Chinese character set is not supported in the R520m product version, the characters can not be displayed. If the same information is received by a R520mc, the strings will be properly displayed.

2.1.7 Single Byte Tokens

Some of the PARM elements are coded as single byte tokens. In the table below, the compliance for these elements is listed.

Element type	PARM element	Compliance, Supported values
ADDRESS	BEARER	Yes, GSM/CSD|GSM/SMS|GPRS
ADDRESS	PROXY_TYPE	No
ADDRESS	PORT	Yes, 9200|9201|9202|9203
ADDRESS	PPP_AUTHTYPE	Yes, PAP|CHAP
ADDRESS	PPP_LOGINTYPE	Yes, AUTOMATIC|MANUAL
ADDRESS	PROXY_LOGINTYPE	No
ADDRESS	CSD_CALLTYPE	Yes, ANALOGUE|ISDN
ADDRESS	CSD_CALLSPEED	Yes, 9600|14400|19200|28800

2.2 Detailed Comments

The table below outlines the compliance statements between [1] and the R520m/mc. To have a full understanding of the implementation, this section should be considered together with the general statements in section 2.1.

Reference	Comment
Section 5.1	Setting of browser bookmarks is supported but the first bookmark will be mapped as the homepage of the corresponding WAP profile.
Section 7.3.1	R520m/mc does not support GSM/USSD and IS-136/CSD as bearers for WAP or e-mail, i.e. they will be ignored. One set of settings for each bearer type will be valid, i.e. one set of settings for GSM/CSD and one for GPRS.
Section 7.3.2	PPP_AUTHTYPE to be used for GSM/CSD as well as for GPRS.
Section 7.3.2	R520m/mc does not support MS_CHAP as authentication protocol, i.e this value will be ignored.
Section 7.3.3	PPP_AUTHNAME to be used for GSM/CSD as well as for GPRS.
Section 7.3.4	PPP_AUTHSECRET to be used for GSM/CSD as well as for GPRS.
Section 7.3.5	PPP_LOGINTYPE to be used for GSM/CSD as well as for GPRS and to be mapped to the setting for Password request: - PPP_LOGINTYPE value MANUAL sets Password request = on (i.e. dynamic password request) - PPP_LOGINTYPE value AUTOMATIC sets Password request = off.
Section 7.3.6	If more than one instance of this parameter (PROXY) exist, only one will be used in the created WAP profile. The mapping of the PROXY instance to the WAP profile will apply to the following priority order: GPRS, CSD and SMS, i.e. the PROXY parameter in the context of a GPRS bearer has the highest priority followed by parameters in the context of CSD and SMS.
Section 7.3.7	This parameter (PROXY_TYPE) applies to GSM/USSD only, and is thus not applicable for R520m/mc.
Section 7.3.10	R520m/mc does not support dynamic password request for proxy login, i.e. this parameter (PROXY_LOGINTYPE) is not valid, and it is thus ignored.
Section 7.3.11	This parameter (PORT) controls both the data mode and enables/disables secure connections: - PORT value 9200 sets data mode = connection less and security = off. - PORT value 9201 sets data mode = connection oriented and security = off. - PORT value 9202 sets data mode = connection less and security = on. - PORT value 9203 sets data mode = connection oriented and security = on.
Section 7.3.14	R520m/mc does not support the following values of this parameter (CSD_CALLSPEED): AUTO, 38400, 43200 and 57600. If this parameter has any of these values, the parameter will be ignored.
Section 7.3.15	The parameter (ISP_NAME) is used to set the data account name. The data account will be updated with new settings in case an account with the same name already exists. Omitted parameters will be set to their default values. In case several accounts with the same name exist (i.e. the user has manually created data accounts via the MMI using the same names) only the first occurrence of the data account will be updated.
Section 7.3.17	This parameter (USSD_SERVICE_CODE) applies to GSM/USSD only, and is thus not applicable for R520m/mc.
Section 7.3.18	If BEARER is set to GPRS, there will be a GPRS data account created even if no GPRS_ACCESSPOINTNAME is provided.
Section 7.7	When an OTA message is received, the user will be prompted if he/she would like to accept the new set of settings, and if that is the case, which out of the five available profiles that should be changed accordingly. If the OTA message includes the element type ID, the related inline string is shown together with the initial prompt.

2.3 Mapping of the OTA Parameters to the Ericsson R520m/mc Menu Alternatives

The table below shows the mapping of the OTA parameters to the parameters in the R520m/mc. The references to the parameters in R520m/mc are given in terms of the English menu alternatives and the text labels. By using the text labels as the key, the corresponding menu texts in other languages could be derived. Greyed rows illustrate sub-menu levels and are included for reference only.

OTA Char Type	OTA Parm Name	OTA Parm Value		Ericsson text	Comments
ADDRESS					
	BEARER			Connection type	Choice of bearers in “Data accounts”
		GSM/CSD		GSM data	
		GSM/SMS		SMS	
		GPRS		GPRS data	
	PPP_AUTHTYPE				
		PAP		Normal	
		CHAP		Secure	
	PPP_AUTHNAME	Inline string		User ID	Used for user-id setting for various bearers, i.e.for ISPs as well as APNs
	PPP_AUTHSECRECT	Inline string		Password	See above
	PPP_LOGINTYPE				
		AUTOMATIC		Password request = off	"On/off" selection
		MANUAL		Password request = on	"On/off" selection
	PROXY	Inline string		IP address	
	PROXY	Inline string		SMS address	
	PROXY_AUTHNAME	Inline string		User id	
	PROXY_AUTHSECRET	Inline string		Password	
	PORT				
		9200		Data mode = Conn. less, Security = Off	
		9201		Data mode = Conn. oriented, Security = Off	
		9202		Data mode = Conn. less, Security = On	
		9203		Data mode = Conn. oriented, Security = On	
	CSD_DIALSTRING	Inline string		Number:	
	CSD_CALLTYPE				
		ANALOGUE		Analogue	
		ISDN		ISDN	
	CSD_CALLSPEED			Data rate	
		AUTO		-	Ignored
		9600		9.6 kbit/s	
		14400		14.4 kbit/s	
		19200		19.2 kbit/s	
		28800		28.8 kbit/s	

OTA Char Type	OTA Parm Name	OTA Parm Value		Ericsson text	Comments
	ISP_NAME	Inline string		Name	
	SMS_SMSC_ADDRESS	Inline string		Service centre	
	GPRS_ACCESSPOINTNAME	Inline string		Access point name	
BOOKMARK				Bookmarks	
	NAME	Inline string		Homepage/Title:	Only the NAME of the first bookmark will be mapped to the title of the homepage.
	URL	Inline string		Homepage/ Address:	Only the URL of the first bookmark will be mapped to the URL of the homepage.
ID	NAME	Inline string			Does only show up in a prompt.

2.4 Mapping of the Complete Sub-Menu Structure in R520m/mc to the OTA Settings

The table that follows outlines the sub-menu structure in R520m/mc and maps it to the OTA settings. Thus, the table also shows some R520m/mc parameters that do not map into an OTA setting.

2.4.1 Data Communication Settings

Ericsson R520m/ mc menu items						OTA settings		
3	4	5	6	7	8	Characteri-stic type	PARM Name	Value
Data accounts	Add account?	Name:				ADDRESS	ISP_NAME	Inline string
		Account type	GPRS data <radio button choice GPRS or GSM data>			ADDRESS	BEARER	GPRS
			GSM data <radio button choice GPRS or GSM data>					GSM/CSD
		<If choice=GPRS data>	APN name:			ADDRESS	GPRS_ACCESSPOINTNAME	Inline string
			User id:			ADDRESS	PPP_AUTHNAME	Inline string
			Password:			ADDRESS	PPP_AUTHSECRET	Inline string
			Accept					
	<list>	Edit	APN name			ADDRESS	GPRS_ACCESSPOINTNAME	Inline string
			User id			ADDRESS	PPP_AUTHNAME	Inline string
			Password			ADDRESS	PPP_AUTHSECRET	Inline string
			Password Request	On		ADDRESS	PPP_LOGINTYPE	MANUAL
				Off		ADDRESS	PPP_LOGINTYPE	AUTOMATIC
			Pref. Service	Automatic				
				GPRS only				
			IP address					
			Advan. Settings	Authentication	Normal	ADDRESS	PPP_AUTHTYPE	PAP
					Secure	ADDRESS	PPP_AUTHTYPE	CHAP
					None			
				Data compr.	On			
					Off			
				Header compr.	On			
					Off			
				Quality of Service	Precedence			
					Delay			
					Reliability			
					Peak Rate			
					Mean Rate			

Ericsson R520m/ mc menu items						OTA settings		
3	4	5	6	7	8	Characteri -stic type	PARM Name	Value
		<If choice=GSM data>	Phone number			ADDRESS	CSD_DIALSTRING	Inline string
			User id			ADDRESS	PPP_AUTHNAME	Inline string
			Password			ADDRESS	PPP_AUTHSECRET	Inline string
			Passwd Request	On		ADDRESS	PPP_LOGINTYPE	MANUAL
				Off				AUTOMATIC
			Datarate	28.8 kbit/s		ADDRESS	CSD_CALLSPEED	28800
				19.2 kbit/s				19200
				14.4 kbit/s				14400
				9.6 kbit/s				9600
			Dial Type	Analogue		ADDRESS	CSD_CALLTYPE	ANALOGUE
				ISDN				ISDN
		Rename	Name:					

2.4.2 WAP Settings

Ericsson R520m/ mc menu items						OTA settings		
2	3	4	5	6	7	Characteri-stic type	PARM Name	Value
Homepage								
Bookmarks	Add bookmark? <List>					BOOKMARK	NAME, URL	Inline string, inline string
Push inbox	<List>							
Enter address	DataListWithAdd <List>							
Resume								
Select profile	<ProfileSelection>							
Clear cache								
WAP settings	Common	Push access	On					
			Off					
		Security	Trusted certif.					
			Client certif.					
			Contracts					
			Locks					
	<Profile 1> (WAP Profile names)	Rename				NAME	NAME	Inline string
		Chg homepage				URL		Inline string
						BOOKMARK	NAME URL	Inline string Inline string
		Save to						
		Gateway	IP Settings	Connect using				
				IP address		ADDRESS	PROXY	Inline string
				User id		ADDRESS	PROXY_AUTHNAME	Inline string
				Password		ADDRESS	PROXY_AUTHSECRET	Inline string
				Data mode	Conn. oriented	ADDRESS	PORT	9201I9203
					Conn. less	ADDRESS	PORT	9200I9202
				Security	On	ADDRESS	PORT	9202I9203
					Off	ADDRESS	PORT	9200I9201
				Show images				
				Response timer				
			SMS settings	Service centre		ADDRESS	SMS_SMSC_ADDRESS	Inline string
				SMS gateway		ADDRESS	PROXY	Inline string
				User id		ADDRESS	PROXY_AUTHNAME	Inline string

Ericsson R520m/ mc menu items						OTA settings		
2	3	4	5	6	7	Characteri -stic type	PARM Name	Value
				Password		ADDRESS	PROXY_AUTHSECRET	Inline string
				Security	On	ADDRESS	PORT	9202I9203
					Off	ADDRESS	PORT	9200I9201
				Show images				
				Response timer				
			Change type	IP		ADDRESS	BEARER	GSM/ CSDIGPRS
				SMS		ADDRESS	BEARER	GSM/SMS

3 Compliance to Smart Messaging

3.1 Overview

R520m/mc uses the Ericsson Smart Messaging (ESM) protocol as defined in section 5. The ESM protocol is based upon, and compatible with, the Smart Messaging protocol [2].

This section outlines the compliance between the two protocols. ESM does not comply with Wireless Datagram Protocol (WDP) or Narrow-Band Sockets (NBS) as a bearer. Only plain SMS with <iap-compatibility-header> is supported.

When the SMS(s) including the e-mail settings has been received and properly parsed, the user is prompted whether to accept the new set of e-mail settings. By confirming this, a new e-mail account will be created (unless an e-mail account with the same name already exists, see below) with the corresponding settings. For a new e-mail account, the parameters that are not included among the new settings are set to their default values.

If an e-mail account with the same name already exists in the phone, this account will be updated with the new settings instead of creating a new account. For an existing account, omitted parameters are kept with their original value.

3.2 Detailed Comments

Compliance is limited to section 3.6 of [2]. The table below outlines the compliance statements between ESM and [2].

In the case of non-compliance, the element is ignored.

Section	Keyword	Compliance	Comment
3.6	**Internet Access Configuration**		
3.6.1	**Basic Configuration Syntax**		
	//SIAP11	Yes	Required, not optional
3.6.1.1	**Basic IAP**		
	No support for Basic IAP via ESM.		
3.6.1.2	**Basic Mail**		
	Mname	Yes (parameter truncated if length exceeds 15 characters).	Data account to use; length of 15 characters supported.
	Muid	Yes (parameter truncated if length exceeds 15 characters).	Mailbox user name; length of 15 characters supported.
	Mpwd	Yes (parameter truncated if length exceeds 15 characters).	Mailbox password; length of 15 characters supported.
	Madr	Yes (parameter truncated if length exceeds 40 characters).	Own e-mail address; length of 40 characters supported.
	Mrcv	Yes (parameter truncated if length exceeds 31 characters).	POP3 server name; length of 31 characters supported.
	Msnd	Yes (parameter truncated if length exceeds 31 characters).	SMTP server name; length of 31 characters supported.
	Mpro	No	Mail protocol; only POP3 is supported and thereby this parameter is ignored.
3.6.3	**Extended Configuration Syntax**		
3.6.3.1-13	No support for Extended IAP, Extended Mail, WWW Hotlist Item Settings, Script settings, SMS settings, Telnet, Terminal, WWW, TTML, FTP, Internet Settings, Telephone settings and WWW Autofetch Settings.		

3.3 Mapping of the Complete Sub-menu Structure to the Smart Messaging Settings

Ericsson R520m/ mc menu items						Smart Messaging settings		
2	3	4	5	6	7	Parameter	Terminal Symbol	Value
Send & Receive								
Inbox								
Compose								
Outbox								
Drafts								
Archive								
Options	Set account	<List of accounts>						
	Edit account	Add new? <List of accounts>	Name			<mail-iap-name>	Mname	<default-char-not-lf>
			Connect using					
			POP3 server			<mail-parameter-receiving-host>	Mrcv	<iaddress>
			POP3 port					
			Mailbox			<mail-parameter - remote-mailbox-username>	Muid	<default-char-not-lf>
			Password			<mail-parameter - remote-mailbox-password>	Mpwd	<default-char-not-lf>
			SMTP server			<mail-parameter-receiving-host>	Msnd	<iaddress>
			SMTP port					
			Email address			<mail-parameter-own-email-address>	Madr	<default-char-not-lf>
			From name					
			Signature					
			Check interval					

4 Appendix A - Examples

The example below illustrates most of the parameters that the R520m/mc is supporting. The scenario depicted should correspond to the following scenario from the end user's viewpoint.

4.1 Data account and WAP settings

When the SMS(s) including the OTA information has been received and properly parsed, the user is prompted whether to accept the new set of settings.

Assuming that the user answers YES, the user is then presented with a selection of which of the five profiles that should comprise the new settings. Before being updated, the selected profile will be reset to its default values.

Two data accounts will be created, one with the name "MyGSM_Account" using CSD as a bearer and one with the name "MyGPRS_Account", using GPRS as a bearer. According to the priority rules described in chapter 2.1.2, the GPRS account will be used for the WAP profile.

The name of the WAP profile is then changed to "MyOperator". The title of the homepage is set to "Danish WAP" and the related URL is defined as "wap.dk"

In the example the reference to the DOCTYPE is shown for illustrative purpose.

```
<?xml version=”1.0”?>
<!DOCTYPE CHARACTERISTIC-LIST SYSTEM “file:///c:/settingspush/settings.dtd” >
<CHARACTERISTIC-LIST>
<CHARACTERISTIC TYPE=”ADDRESS”>
<PARM NAME=”BEARER” VALUE=”GSM/CSD”/>
<PARM NAME=”ISP_NAME” VALUE=”MyGSM_Account”/>
<PARM NAME=”CSD_DIALSTRING” VALUE=”+464044445”/>
<PARM NAME=”PPP_AUTHNAME” VALUE=”myusername”/>
<PARM NAME=”PPP_AUTHSECRET” VALUE=”mypassword”/>
</CHARACTERISTIC>
<CHARACTERISTIC TYPE=”ADDRESS”>
<PARM NAME=”BEARER” VALUE=”GPRS”/>
<PARM NAME=”ISP_NAME” VALUE=”MyGPRS_Account”/>
<PARM NAME=”PROXY” VALUE=”133.200.51.125”/>
<PARM NAME=”GPRS_ACCESSPOINTNAME” VALUE=”sonofon.com”/>
<PARM NAME=”PPP_AUTHTYPE” VALUE=”PAP”/>
<PARM NAME=”PPP_AUTHNAME” VALUE=”myAPNusername”/>
<PARM NAME=”PPP_AUTHSECRET” VALUE=”myAPNpassword”/>
</CHARACTERISTIC>

   <CHARACTERISTIC TYPE=”BOOKMARK”>
<PARM NAME=”NAME” VALUE=”Danish WAP”/>
<PARM NAME=”URL” VALUE=”wap.dk”/>
</CHARACTERISTIC>
<CHARACTERISTIC TYPE=”NAME”>
<PARM NAME=”NAME” VALUE=”MyOperator”/>
</CHARACTERISTIC>
<CHARACTERISTIC TYPE=”ID”>
<PARM NAME=”NAME” VALUE=”PushID”/>
</CHARACTERISTIC>
</CHARACTERISTIC-LIST>
```

The WBXML coded document including WDP and WSP headers MIME-type used:
application/x-wap-prov.browser-settings.

4.2 E-Mail Settings

When the SMS(s) including the e-mail settings has been received and properly parsed, the user is prompted whether to accept the new set of e-mail settings. By confirming this, a new e-mail account will be created (unless an e-mail account with the same name already exists, see below) with the corresponding settings. For a new e-mail account, the parameters that are not included among the new settings are set to their default values.

If an e-mail account with the same name already exists in the phone, this account will be updated with the new settings instead of creating a new account. For an existing account, omitted parameters are kept with their original value.

- The name of the new e-mail account is set to "MyOperator2".
- Mailbox user name is set to "myemailusername"
- Mailbox password is set to "myemailpassword"
- The outgoing e-mail address is set to myemailaddress@myoperator2.com
- Incoming server is set to "345.678.901.234"

- Outgoing server is set to “123.456.789.012”

//SIAP11

Mname:MyOperator2
Muid:myemailusername
Mpwd:myemailpassword
Madr:myemailaddress@myoperator2.com
Mrcv: 345.678.901.234
Msnd: 123.456.789.012

5 Appendix B - Ericsson Smart Messaging Protocol

The SMS can be encoded in either the default 7-bit SMS alphabet or UCS-2 as defined in [3]. If the default 7-bit SMS alphabet is used, in order to support transport of script files, the GSM 7-bit default alphabet extension table, also defined in [3], is required.

5.1 Notation

Backus-Naur Form (BNF) notation is used to describe the format of the protocol. The BNF format and extensions used are as follows:

- In BNF notation “::=” means “definition”, where a non-terminal symbol is on the left side of the operator “::=”, and the definition is on the right side.
- The symbol order in BNF notation is the same as the syntax symbol order.
- Terminal symbols are enclosed between quotes (“), and the symbols are written in bold.
- Non-terminal symbols are enclosed between < and > characters.
- Textual definitions for non-terminal characters are enclosed between apostrophes (‘).
- Operator “|” is used as a delimiter between multiple choices.
- Grouping of items is expressed by enclosing them in meta symbols { and }.
- Optional parts are enclosed in meta symbols [and].
- Kleene’s “+” operator is supported, i.e., <A>+ means repetition of non-terminal <A> from 1 to (times.
- Kleene’s “*” operator is supported, i.e., <A>* means repetition of non-terminal <A> from 0 to (times.
- Semicolon symbol “;” means that the rest of the line contains comments.

5.2 Common Text Elements

The used character literals, e.g. “5”, represent the corresponding character values encoded according to the currently used character set.

5.2.1 Character Definitions

```
<line-feed> ::= 'The line feed character of the currently used character set, corresponding to the character with ISO 8859-1 value 10 decimal.'
```

5.2.2 Configuration Syntax

```
<iap-message> ::= <iap-header> <notify-text> <info-body>
<iap-header> ::= "//SIAP11" <line-feed>    ,mandatory header
<notify-text> ::= <default-char-not-lf>* <line-feed>
<info-body> ::=
  <basic-configuration-info>+  |
  <extended-configuration-info>+
<basic-configuration-info> ::=
  <ericsson-iap-info> |
  <mail-info>
<extended-configuration-info> ::=
  <sms-info> |
  <telephone-info> |
  <sms-info> <telephone-info> |
  <telephone-info> <sms-info>
```

5.2.3 Ericsson IAP

```
<ericsson-iap-info> ::=
  <iap-info-name> { <iap-parameter> <line-feed> | <ericsson-extended-iap-parameter> <line-feed> }*

<iap-info> ::= <iap-info-name> { <iap-parameter>  <line-feed> }*
<iap-info-name> ::=  "Iname:" <default-char-not-lf>*  <line-feed>; maximum length 50 chars

<iap-parameter> ::=
  <iap-parameter-phone-number> |
  <iap-parameter-user-name> |
  <iap-parameter-prompt-for-password> |
  <iap-parameter-password> |
  <iap-parameter-modem-initialization> |
  <iap-parameter-ip-address> |
  <iap-parameter-primary-nameserver> |
  <iap-parameter-secondary-nameserver>

<iap-parameter-phone-number> ::= "Itel:" [ <common-phone-number> ]   ; maximum length 16 chars
<iap-parameter-user-name> ::= "Iuid:" <default-char-not-lf>*          ; maximum length 50 chars
<iap-parameter-prompt-for-password> ::= "Ipwp:" [ "Y" | "N" ]        ; whether to ask password from the
                                                                          ; user upon connecting
<iap-parameter-password> ::= "Ipwd:" <default-char-not-lf>*           ; password
<iap-parameter-modem-initialization> ::= "Iini:" <default-char-not-lf>*     ; maximum length 50 chars
<iap-parameter-ip-address> ::= "Iip:" [ <ip-string> ]                ; static IP address, if exists
<iap-parameter-primary-nameserver> ::= "Idns1:" [ <ip-string> ]      ; primary name server (DNS) address
<iap-parameter-secondary-nameserver> ::= "Idns2:" [ <ip-string> ]    ; secondary name server address

<ip-string> ::= <byte-dec> "." <byte-dec> "." <byte-dec> "." <byte-dec>
<byte-dec> ::= <common-digit> [ [ <common-digit> ] <common-digit> ]   ; value in range [0..255] decimal

<ericsson-extended-iap-parameter> :: =
<iap-parameter-script-username> |
<iap-parameter-script-password> |
<iap-parameter-bearer-capability >

<iap-parameter-script-username> ::= "Iian:" <default-char-not-lf>*    ; user name for script authentication
<iap-parameter-script-password> ::= "Iiap:" <default-char-not-lf>*    ; password for script authentication
<iap-parameter- bearer-capability > ::= "Itype:" [ "0" | "1" ]       ; bearer capability
                                                                          ; 0 = ISDN, 1 = Analogue
```

5.2.4 Basic Mail

```
<mail-info> ::= <mail-iap-name> { <mail-parameter> <line-feed> }*

<mail-parameter> ::=
  <mail-parameter-remote-mailbox-username> |
  <mail-parameter-remote-mailbox-password> |
  <mail-parameter-own-email-address> |
  <mail-parameter-receiving-host> |
  <mail-parameter-sending-host> |
  <mail-parameter-remote-mailbox-protocol>

<mail-iap-name> ::= “Mname:” <default-char-not-lf>* <line-feed>                    ; used IAP name, max. 50 chars
<mail-parameter-remote-mailbox-username> ::= “Muid:” <default-char-not-lf>*    ; remote mailbox user name,
                                                                                  ; maximum length 50 chars
<mail-parameter-remote-mailbox-password> ::= “Mpwd:” <default-char-not-lf>*  ; remote mailbox password,
                                                                                  ; maximum length 50 chars
<mail-parameter-own-email-address> ::= “Madr:” [ <email-address> ]              ; the user’s email address,
                                                                                  ; maximum length 100 chars
<mail-parameter-receiving-host> ::= “Mrcv:” [ <iaddress> ]                      ; host name of the
                                                                                  ; IMAP/POP server
<mail-parameter-sending-host> ::= “Msnd:” [ <iaddress> ]                        ; host name of the SMTP
                                                                                  ; server
<mail-parameter-remote-mailbox-protocol> ::= “Mpro:” <mail-protocol>            ; whether to use IMAP or POP

<email-address> ::= <default-char-not-lf>*                ; RFC 822 based name@host.domain format
<iaddress> ::= <ip-string> | <hostname>
<hostname> ::= <default-char-not-lf>*                      ; a host name in DNS, maximum length 50 chars

<mail-protocol> ::= “IM” | “PO”                             ; IM = IMAP4, PO = POP3
```

5.2.5 Script Settings

```
Script settings control the addition of new login scripts to log into an IAP.

 <script-info> ::=
  <script-name> <line-feed>
    <script-data>

<script-name> ::= “Pname:” <default-char-not-lf>*              ; filename, maximum length 32
<script-data> ::= “Pdata:” <common-information-content>    ; the script itself
```

5.2.6 SMS Settings

```
SMS settings control the features of the device’s Short Messaging application.

<sms-info> ::= <sms-item>

<sms-item> ::= [ <sms-service-center-name> ] <sms-service-center-number>

<sms-service-center-name> ::= “Sname:” <default-char-not-lf>*          ; GSM SMSC name
<sms-service-center-number> ::= “Stel:” [ <common-phone-number> ]   ; GSM SMSC telephone number
```

5.2.7 Telephone Settings

```
Telephone settings configure the voice mailbox number.

<telephone-info> ::= <telephone -item>

<telephone-item> ::= <telephone-voice-mailbox-number>

<telephone-voice-mailbox-number> ::= “Tbox:” <common-phone-number>          ; phone number to call
```

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